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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/928,047	08/10/2001	Thomas L. Cantor	532212000600 & 5322120006	7857

7590 07/13/2004

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EXAMINER	
JIANG, DONG	

ART UNIT	PAPER NUMBER
1646	

DATE MAILED: 07/13/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/928,047	CANTOR, THOMAS L.	
	Examiner	Art Unit	
	Dong Jiang	1646	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *14 April 2004*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-12* is/are pending in the application.

4a) Of the above claim(s) *1-4,9 and 11* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *5-8, 10 and 12* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☒ Claim(s) *1-12* are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED OFFICE ACTION

Applicant's amendment filed on 14 April 2004 is acknowledged and entered. Following the amendment, claims 1, 2, and 5-7 are amended, and the new claims 9-12 are added.

The newly amended independent claim 1 is now directed to a method for reducing the occurrence of hypercalcemia or osteosarcoma, which has changed the nature of the original invention, and is an invention independent from the invention originally claimed for the following reasons:

The original claim 1 is directed to a method for treating osteoporosis, which is distinct from to a method for reducing the occurrence of hypercalcemia or osteosarcoma because osteoporosis is a different clinical condition from hypercalcemia or osteosarcoma as it has different cause, distinct pathological and clinical manifestations, and distinct features in progress and prognosis from hypercalcemia or osteosarcoma, and thus a non-coextensive search would be required for a method for reducing the occurrence of hypercalcemia or osteosarcoma.

Since applicant has received an action on the merits for the *originally presented* invention, this invention has been constructively elected by original presentation for prosecution on the merits. Applicants amendment of claim 1 is, therefore, non-responsive. Accordingly, claim 1 and the dependent claims 2-4, 9 and 11 are withdrawn from further consideration as being directed to a non-elected invention. See 37 CFR 1.142(b) and MPEP § 821.03.

Currently, claims 1-12 are pending, and claims 5-8, 10 and 12 are under consideration.

Withdrawal of Objections and Rejections:

All objections and rejections of claims 1-4 are moot as the claims are withdrawn from consideration for the reasons above.

The lack of enablement rejection of claims 5-8 under 35 U.S.C. 112, first paragraph, made in the last Office Action mailed on 14 January 2004, is withdrawn in view of applicant's

amendment, which, however, necessitates the new ground of rejection under 35 U.S.C. 112, first paragraph (see below).

Objections and Rejections under 35 U.S.C. 112:

The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 5-8, 10 and 12 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 5 remains indefinite because it is unclear what is "CAP rebound effect". The specification does not define such, and it is not an art-recognized term. While applicant may be his or her own lexicographer, a term in a claim may not be given a meaning repugnant to the usual meaning of that term. See *In re Hill*, 161 F.2d 367, 73 USPQ 482 (CCPA 1947). The claim is further indefinite for the limitation of "a patient" in line 2 because it is unclear to what kind of patient such a method of induction would apply. The metes and bounds of the claim, therefore, cannot be determined.

Claim 7 remains rejected under 35 U.S.C. 112, second paragraph, as being incomplete for omitting essential elements, such omission amounting to a gap between the elements. See MPEP § 2172.01. The omitted elements are: the method steps, i.e., it is unclear as to how to "monitor and guide the treatment". Further, the claim recites the limitation "the patient having osteoporosis" in line 4. There is insufficient antecedent basis for this limitation in the claim.

The remaining claims are rejected for depending from an indefinite claim.

The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Note: neither the present claims nor the specification defines "CAP rebound effect" present in the instant claims (claim 5, for example). In the interest of compact prosecution, the

claims are interpreted as the following in view of the specification: the specification seems to teach a method for treating a patient having osteoporosis by administering PTH antagonist (CIP), wherein the patient has been undergoing PTH (CAP) treatment, and is experiencing adverse effect, including hypercalcemia and the formation of osteosarcomas, as a result of the PTH treatment. The specification asserts that such a CIP treatment would reduce the occurrence of hypercalcemia or osteosarcomas in the patient resulting from the administration of CAP (page 4, the last paragraph). Additionally, the specification indicates that CIP also has the ability when administered alone to provide a therapeutic treatment for osteroporosis. The claims, therefore, are enabled for a method of treating a patient having osteoporosis with the PTH antagonist.

Claims 5 and 6 are rejected under 35 U.S.C. 112, first paragraph, because the specification, while being enabling for claims limited in scope to a method of administering PTH antagonist to a patient having osteoporosis, does not reasonably provide enablement for claims to a method for inducing the CAP rebound effect by administering said PTH antagonist to any patient. The specification does not enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to use the invention commensurate in scope with these claims.

The factors considered when determining if the disclosure satisfies the enablement requirement and whether any necessary experimentation is "undue" include, but are not limited to: 1) nature of the invention, 2) state of the prior art, 3) relative skill of those in the art, 4) level of predictability in the art, 5) existence of working examples, 6) breadth of claims, 7) amount of direction or guidance by the inventor, and 8) quantity of experimentation needed to make or use the invention. *In re Wands*, 858 F.2d 731, 737, 8 USPQ2d 1400, 1404 (Fed. Cir. 1988).

The amended claims 5 and 6 are now directed to a method for "inducing the CAP rebound effect" by administering said PTH antagonist to a patient, which *reads on* a patient with *any* condition. The specification merely describes *one* type of patient suitable for treatment, the patient having *osteoporosis* and with or without PTH therapy. The specification provides no guidance, nor working example as to why the CAP rebound effect would be needed to any condition, when to apply, and what patient to be applied to besides treating patients having osteoporosis. Therefore, it is unpredictable that inducing the CAP rebound effect is needed for any condition as it is not clear what it is. A skilled artisan would not know how to use the

claimed invention in a manner commensurate in scope with the claim. Even if "the CAP rebound effect" were defined, undue experimentation would be required to determine the conditions under which inducing the CAP rebound effect would be favorable prior to using the present invention in its full scope as it is impossible that such a method of induction can be used in any or all patients as claimed ("a patient").

Due to the large quantity of experimentation necessary to determine whether the induction of the CAP rebound effect is suitable for a patient with any condition besides osteoporosis, the lack of direction/ guidance presented in the specification regarding same, the absence of working examples directed to same, the complex nature of the invention, the state of the prior art that has not established that such would be needed for any patient, and the lack of the predictability, undue experimentation would be required of the skilled artisan to use the claimed invention in its full scope.

Rejections Over Prior Art:

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 5, 6, 8, 10 and 12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Fukuda, US5,856,138, and in view of Kanmera et al., EP 0 451 867 (provided in the last Office Action).

Fukuda discloses several hPHT muteins, SEQ ID NOs:19-22, which comprise deletion of 3 to 6 amino acid residues on the N-terminal side of the sequence of hPTH, and teaches that these muteins function as antagonists of hPTH (column 2, lines 33-35, and 43-45). Fukuda's PTH antagonists meet the limitation for "CIP" in the present claims 5 and 6. Additionally, Fukuda indicates that the prior art has established that compounds in which several amino acid residues on the N-terminal side of PTH (1-34) are deleted are known to function as inhibitors (column 2, lines 27-29). Further, Fukuda teaches that the resulting muteins are useful as

therapeutic drug for treating disorders such as hypercalcemia and hyperparathyroidism (column 11, lines 17-18, and 23-25).

The primary reference does not explicitly teach the use of the PTH antagonists for inducing the CAP rebound effect in a patient having osteoporosis.

Kanmera discloses peptide derivatives that are PTH antagonists, and teaches that the derivatives exhibit a potent inhibitory activity against hPTH and are useful as a therapeutic agent for treating dysbolism associated with calcium or phosphoric acid, such as osteoporosis and renal osteodystrophy (the abstract).

It would have been obvious to the person of ordinary skill in the art at the time the invention was made to use the PTH antagonists taught by Fukuda in the treatment of disorders such as osteoporosis as indicated by Kanmera that PTH antagonists are useful for such a disorder. Therefore, although neither reference mentions the induction of the CAP rebound effect by the PTH antagonist as recited in the present claim 5, such would be an inherent property of a method of treatment using the PTH antagonists as the PTH antagonists taught by the prior art are the same as those of the present invention, and treating a patient having osteoporosis would inevitably induce the CAP rebound effect. The person of ordinary skill in the art would have been motivated to do so for treating the diseases such as osteoporosis, and reasonably would have expected success because Kanmera has demonstrated that PTH antagonists are useful for such an application.

With respect to the limitations of "in a pulsatile manner", and "in a continuous manner" in claims 8 and 12, respectively, given the current state of the art, determination of an appropriate manner of administering a drug is well within the purview of a person of ordinary skill in the art. Additionally, most medications can only be given in either a pulsatile or a continuous manner (except a one dose treatment), therefore, such limitations are considered prima facie obvious.

Conclusion:

No claim is allowed.

Advisory Information:

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication should be directed to Dong Jiang whose telephone number is 571-272-0872. The examiner can normally be reached on Monday - Friday from 9:30 AM to 7:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Brenda Brumback, can be reached on 571-272-0961. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

LORRAINE SPECTOR
PRIMARY EXAMINER

Dong Jiang, Ph.D.
Patent Examiner
AU1646
7/7/04